

## REMARKS

Claim 1 has been amended to more specifically define R<sub>F</sub> and Q<sub>S</sub>. Basis is in original claims 5, 13, and 26. Claims 2-4, 6-8, and 36 have been cancelled. In response to the restriction requirement withdrawn claims 14-25 and 27-35 have been cancelled.

### I. Rejection under 35 USC 112

Claims 1-5, 7-13, 26, and 36 were rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse this rejection.

Claim 1 has been amended to limit its scope to specific definitions of R<sub>F</sub> and Q<sub>S</sub>. As noted by the Examiner, the specification provides sufficient guidance for one skilled in the art to make and/or use moieties such as the specific R<sub>F</sub> structures disclosed in Table 1, and the specific Q<sub>S</sub> structures on pages 54-55. Thus Applicants submit that the compounds as currently claimed are enabled by the specification, and one skilled in the art would not have to undergo undue experimentation. Applicants therefore respectfully submit that claims 1, 9-13 and 26 are in compliance with all requirements of 35 USC 112, first paragraph.

### II. Rejection under 35 USC 102

Claims 1-5, 7-12, and 36 were rejected under 35 USC 102 as anticipated by US 5,368,972 of Yamashita et al. Claims 1-5, 7-9, 12 and 36 were rejected under 35 USC 102 as anticipated by US 3,933,819 of Toukan et al. Claims 1-5, 7-12, and 36 were rejected under 35 USC 102 as anticipated by JP 11-29508 of Otsubo et al. Applicants respectfully traverse these rejections.

The claims as amended herein are distinct from Yamashita et al. in that Applicants' surfactants contain no cyclic group, and no I, as disclosed by Yamashita. Further Applicants' claims require that R<sub>F</sub> contains at least two CF<sub>3</sub> moieties, and that R<sub>F</sub> contains at least one CH<sub>2</sub> moiety. In the compounds of Yamashita, the fluoroalkyl group does not contain a CH<sub>2</sub> group, and two CF<sub>3</sub> groups are present only when a cyclic group is also present. Applicants' surfactants are distinct from Toukan et al. in that Applicants require that R<sub>F</sub> contains a CH<sub>2</sub> group, while Toukan et al requires R<sub>F</sub> to be a perfluoroalkyl, a perfluoroisoalkoxyalkyl, or a perfluoromonochloroalkyl. In addition Applicants' Q<sub>S</sub> is not taught by Toukan et al. because Toukan et al. requires their group Q to be an aryl, alkylaryl, alkylheterocyclic, or heterocyclic group. Applicants' Q does not contain an aryl or heterocyclic group. Applicants' surfactants are distinct from Otsubo et al. in that Applicants' compound does not contain the divalent aromatic group depicted by Otsubo et al as -(Ph)-. Applicants therefore respectfully maintain that claims 1 and 9-12, as amended herein, are distinct from and novel over each of Yamashita et al. Toukan et al., and Otsubo et al. under 35 USC 102.

### III. Rejection under 35 USC 103

Claims 1-5, 7-12, and 36 were rejected under 35 USC 103(a) as obvious over US 5,368,972 of Yamashita et al. Claims 1-5, 7-9, 12 and 36 were rejected under 35 USC 103 (a) as obvious over US 3,933,819 of Toukan et al. Claims 1-5, 7-12, and 36 were rejected under 35 USC 103(a) as obvious over JP 11-29508 of Otsubo et al. Applicants respectfully traverse these rejections.

Yamashita et al. disclose surfactants for use in the preparation of composite particles used as toners in electronic equipment, which surfactants are chemically distinct from those of Applicants. In contrast Applicants' surfactants are used in treating substrates to impart surface effects thereto, or in fire fighting formulations. Yamashita et al. does not teach or suggest Applicants' claimed compounds, and does not teach or suggest their end uses. In the Yamashita et al. compounds there is no  $-CH_2-$  group present in the fluorinated portion of the molecule. The presence of this group offers a flexible point in the molecule, and the flexibility permits more facile and efficient self-assembly of the compounds at phase boundaries, resulting in lower achievable surface tension. Also compounds with a  $-CH_2-$  group extending a perfluoroalkyl chain provide a surfactant that typically exhibits a lower critical micelle concentration and a lower minimum surface tension when compared to a compound having the perfluoroalkyl without the  $-CH_2-$  group. Thus Applicants' compounds provide unexpected advantages not suggested by Yamashita et al.

Toukan et al. teach compounds containing aryl or heterocyclic groups attached to a fluorinated group useful as surface tension depressants. Applicants' compounds do not contain any aryl or heterocyclic groups. One skilled in the art would not look to Toukan et al. for guidance in making the claimed compounds. The presence of such aryl and heterocyclic groups would affect the performance of the compounds. Compounds containing such aryl or cyclic components are less efficient than those containing linear, or even branched, chains. On a weight basis a larger amount of the surfactant containing the cyclic component is needed to attain the minimum surface tension. This is in part due to the rigidity of cyclic systems, which decreases efficient packing of the molecules at phase boundaries (interfaces).

Otsubo et al. teaches compounds useful for electric conduction containing a divalent aromatic group. Applicants' compounds do not contain this moiety. The electric sensitivity of the reference compound is important in its use for electric conduction and is affected by the presence of the required aromatic group. One skilled in the art trying to make Applicants' compounds would not look to the Otsubo et al. compounds containing the aromatic group for guidance. As noted above the presence of cyclic structures contributes to rigidity and inefficient packing at phase boundaries, leading to a need to use larger amounts of the surfactant compared to one without cyclic structures.

Applicants therefore respectfully submit that claims 1, and 9-12, as amended herein are not obvious under 35 USC 103 in view of Yamashita et al., Toukan et al., and Otsubo et al.

#### IV. Double Patenting Rejection

Claims 1-5, 7-13, 26, and 36 were provisionally rejected on the ground of obviousness-type double patenting over claims 1-101 of US Application No. 11/899,065. Claims 1-5, 7-13, 26, and 36 were provisionally rejected on the ground of obviousness-type double patenting over claims 1-296 of US Application No. 11/922,980. Applicants respectfully traverse these rejections.

Applicants enclose a terminal disclaimer for each of Application No. 11/899,065 and Application No. 11/922,980. Applicants therefore respectfully request that the provisional double patenting rejections be withdrawn.

#### V. Conclusions

Applicants respectfully submit that claims 1, 9-13, and 26 are in condition for allowance, and request that a patent be granted on these claims. Should any questions arise, the examiner is invited to contact Applicants' attorney at a number provided below.

Respectfully submitted,

/Nancy S. Mayer/

**NANCY S. MAYER**  
ATTORNEY FOR APPLICANTS  
Registration No.: 29,190  
Telephone: (302) 892-0680  
Facsimile: (302) 892-7925

Dated: October 28, 2010